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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/813,476 | 03/30/2004 | Xiangyang Zhuang | CML01499M | 4791 |
| 22917 | 7590 | 11/01/2007 | | |
| MOTOROLA, INC. 1303 EAST ALGONQUIN ROAD IL01/3RD SCHAUMBURG, IL 60196 | | | EXAMINER HOM, SHICK C | |
| | | | ART UNIT 2616 | PAPER NUMBER |
| | | | NOTIFICATION DATE 11/01/2007 | DELIVERY MODE ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Docketing.Schaumburg@motorola.com
APT099@motorola.com

Office Action Summary

Application No.

10/813,476

Applicant(s)

ZHUANG ET AL.

Examiner

Shick C. Hom

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/17/07 and interview of 10/17/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-13, 15, 17, 18, 20, 22-24, 26 and 28-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8, 10, 20, 22-24 and 28-30 is/are allowed.
- 6) ☒ Claim(s) 15, 17, 18, 26 and 31-34 is/are rejected.
- 7) ☒ Claim(s) 11-13, 35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

1. Upon reconsideration, the amendment of 9/17/07 has been entered and the finality of the previous office action has been withdrawn.

Response to Arguments

2. Applicant's arguments with respect to claims 1-8, 10-13, 15, 17-18, 20, 22-24, 26, and 28-35 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claims 11-13 are objected to because of the following informalities: In claim 11 lines 11-12, the words "a pilot sequence" seem to refer back to the "pilot sequence" recited in claim 11 line 2. If this is true, it is suggested changing "a pilot sequence" to ---the pilot sequence---. Claims 12-13 are objected to because they depend from objected claim 11. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. Claims 15 and 17-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to

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particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 15 lines 7-8 which recite "a second pilot channel sequence" is not clear as to where is the first pilot channel sequence. In claim 17 line 3 and claim 18 line 1 which recite "the pilot channel sequence" is not clear as to whether it is referring to the pilot channel sequence of claim 15 line 2 or the second pilot channel sequence.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to

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point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 26, 31-32, and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mody et al. (2002/0181509) in view of Popovic (6,804,307).

Regarding claims 26, 31:

Mody et al. disclose a method for assigning a pilot sequence to communication units within a communication system, the method comprising the steps of:

assigning a first communication unit a first pilot sequence, wherein the first pilot sequence is selected from a group of pilot sequences constructed from a set of Generalized Chirp-Like (GCL) sequences; and

assigning a second communication unit a second pilot sequence taken from the group of pilot sequences constructed from the set of GCL sequences (paragraphs 0038-0041 recite providing pilot/training symbols to the preamble of the frame of the sub-channels, whereby the pilot/training symbols for each

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sub-channel being unique to the particular sub-channel clearly reads on the same set of sequences being used to construct the first and second pilot sequence; and paragraph 0041 recite the sequences being chirp-like sequences as in claim 26); wherein

the first and second communication units each comprise an antenna of a remote unit (paragraph 0093 recite the training sequence structure is designed such that the same sequence is transmitted from all the transmitting antennas for the purpose of cross-correlation and paragraph 0007 recite transmitting to remote location clearly anticipate the base unit/station or remote unit as in claims 31-32); and wherein

the first pilot sequence is assigned to a set of subcarriers in the frequency domain and utilizing by the first communication unit different sequences for transmission at different times in a transmission frame (the abstract recite transmission being in both the time domain and frequency domain as in claims 33-34).

Mody et al. disclose all the subject matter of the claimed invention with the exception of wherein the first pilot sequence is based on a cyclically extended Generalized Chirp-Like (GCL) sequence as in claim 26.

Popovic from the same or similar fields of endeavor teach that it is known to provide wherein the first pilot sequence is

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based on a cyclically extended Generalized Chirp-Like (GCL) sequence (col. 4 lines 1-15 recite use of a cyclic version of a GCL sequence).

Thus, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to provide wherein the first pilot sequence is based on a cyclically extended Generalized Chirp-Like (GCL) sequence as taught by Popovic in the communications method of Mody et al.

The first pilot sequence being based on a cyclically extended Generalized Chirp-Like (GCL) sequence can be implemented by substituting the cyclically extended Generalized Chirp-Like (GCL) sequence of Popovic for the GCL sequence of Mody. The motivation for using the cyclically extended Generalized Chirp-Like (GCL) sequence as taught by Popovic in the communication method of Mody et al. being that it provides more efficiency for the system uses an easily extended GCL sequence for assignment to the pilot sequences.

Allowable Subject Matter

7. Claims 1-8, 10, 20, 22-24 and 28-30 are allowed.

8. Claims 11-13 would be allowable if rewritten to overcome the objection(s) set forth in this office action.

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9. Claims 15 and 17-18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

10. Claim 35 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McCoy discloses pilot signal in an FDMA communication system. Hosseinian et al. disclose a method and apparatus for channel estimation using time-frequency localized pilots and de-noising techniques.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shick C. Hom whose telephone number is 571-272-3173. The examiner can normally be reached on Mon-Fri.

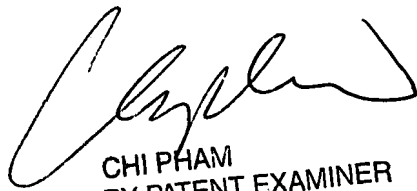
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pham Chi can be reached on 571-272-3179. The fax phone number for the organization

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where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SH SH


CHI PHAM
SUPERVISORY PATENT EXAMINER
12/29/07